FACTORS AFFECTING MENTAL HEALTH SERVICE UTILIZATION AMONG DEPLOYED MILITARY PERSONNEL

by

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ABSTRACT

This study contrasts the characteristics of clients using military mental health services in deployed and nondeployed settings, the communications between their mental health providers and commanders, and the impact of mental health services on their military duties. The study explored the rates of command communication and duty restrictions across settings and referral sources. Diagnoses and prior mental health service utilization were also tested to determine if they predicted significant mental health problems resulting in duty restrictions for clients in deployed settings.

The study used secondary data from two predominantly Air Force sources: (1) deployed data collected in 2005 at Al Udeid Air Base, Qatar; and (2) nondeployed data collected in 2001 at various nondeployed settings. Chi-square analyses were used to compare the demographic variables, command communication and duty restrictions. Among self-referrals, there were higher rates of command communication and duty restrictions in the deployed setting. Further analysis found that the rate of self-referral to mental health services did not vary significantly across settings despite the barriers of increased command communications and duty restrictions in the deployed setting. Finally, binomial logistic regression analyses did not find that either prior mental health service utilization or diagnosis predicted significant mental health problems that resulted in duty restrictions while deployed. This study extends the findings of Rowan and

Campise's 2006 initial nondeployed study into the deployed environment. The findings also contribute to the literature regarding deployed military mental health clients, predeployment screenings and provider training while offering future recommendations to expand research to other locations and military services.

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CHAPTER I

INTRODUCTION

Many in the general population who have mental health problems do not seek treatment for them (Corrigan, 2004; Kessler, Wai, Demler, & Walters, 2005; Narrow, Rae, Robins, & Regier, 2002). Similar to the general population, many military service members who need mental health services do not obtain them (Bourdon, Rae, Locke, Narrow, & Regier, 1992; Corrigan, 2004; Eaton, et al., 2008). The proposed research centers on underutilization of mental health services among military service members who are experiencing difficulties while they are deployed in combat settings. The study will explore factors affecting utilization of military mental health services, such as the impact of limitations on confidentiality characteristic of the military context. Chapter 1 explains the objectives of the research, defines terms and issues specific to this study, and describes the provision of mental health services in a military context. Chapter 2 reviews literature pertinent to barriers to use of military mental health services and specifies the research questions to be explored in this study. Chapter 3 describes the data and analyses that will be used to answer these research questions.

A brief overview of historical and contemporary military approaches to the provision of mental health services, including definition of fundamental military specific terms, follows.

History

Social work has been involved in providing mental health services to U.S. military service members since World War II. The French first recognized the need for psychiatric support during World War I to treat combat stress symptoms that they perceived as curable if treated at the time of onset. Further, the British noted that soldiers evacuated back to UK hospitals due to psychological symptoms were less likely to return to their combat units than those treated on the front lines (Jones, 1995). As a result, during World War I the western protocol for psychiatric casualties was to provide immediate, brief treatment near the front lines with the expectation that the soldiers would return immediately to full duty. The U.S. military employed formal psychiatric teams as early as 1917 to prevent and treat combat stress related conditions with the primary goal of returning soldiers to duty expeditiously (Department of the Army, 2006; United States Army Surgeon General, 2008). The need for mental health related services for military service personnel continues to be justified today in that psychiatric symptoms of combat stress represent as much as 50% of all battlefield casualties (Bacon & Staudenmeier, 2003).

The expansion of the social work profession into provision of mental health services during the last half of the 20th century created the opportunity for military social workers. Historically, the social work profession focused on the individual and social welfare of the poor and oppressed. Over the more than 150 years of the profession, social workers have expanded into fields such as policy analysis, medical social work and psychotherapy. In the United States, social workers now provide over half of all mental

health services, more than psychologists, psychiatrists, and psychiatric nurses combined (National Association of Social Workers, 2008).

In 1943, the U.S. military began employing social workers in an effort to expand its mental health support base. Initially social workers were employed solely for mental health counseling. However, these responsibilities quickly expanded to provision of family services and domestic violence programs (Stone, 1998). Today, active duty military social workers also provide services in inpatient psychiatric wards, physician consultation, program evaluation, and program administration.

The Role of Mental Health Providers within the Military

Generally speaking, mental health providers in the Armed Forces fulfill two functions. First, they provide mental health prevention and treatment in order to "enhance coping and build resilience" of service members and their families (Department of Defense, 2009, p. 2). Services are offered both at nondeployed locations as well as at deployed sites (Department of Defense, 2004). In addition to continually monitoring their clients' abilities to perform military duties, military mental health providers conduct evaluations and screenings to determine eligibility of individual members for specific service assignments and for security clearances (Department of Defense, 2004; United States Office of Personnel Management, 2008).

Second, the Department of Defense maintains a staff of active duty mental health providers to deploy them in support of wartime operations (Department of Defense Task Force on Mental Health, 2007; Department of the Army, 2006) Mental health services at a nondeployed base vastly differ from those provided in a deployed combat unit. While

the overarching purpose of mental health services remains the same, to return members to full duty as soon as possible, the combat environment significantly decreases the threshold of acceptability of psychological impairment before service members are considered incapable of performing their duties. In other words, a diagnosis considered a simple and treatable mental health problem in a noncombat environment may justify removal from duties or evacuation of a service member from a combat environment. This difference in tolerance of impairment is necessary because service members are required to be combat ready and carry weapons in the combat environment, and significant psychological distress presents a high risk for carrying a weapon. Accordingly, deployed social workers fill a crucial role in screening and treating mental health problems in a combat environment, helping service members regain psychological stability and return to duty as quickly as possible.

Military Specific Terminology

Because many civilian readers are not familiar with military terminology, there are two concepts commonly used in conjunction with military mental health that should be defined. The first concept is the definition of a "deployed" setting. For the purposes of this study, a deployed setting refers to a military installation or clinic directly supporting combat operations. For example, the United States currently maintains military mental health services as part of operations in Iraq, Afghanistan and surrounding regions. These locations typically experience or are at risk of experiencing direct combat and mortar attacks. A "nondeployed" setting refers to a military installation or clinic

located outside of combat operations, such as those currently situated in Europe or the United States.

A second concept requiring clarification is that of disclosure, or "command communication" between a service member's mental health provider and his or her commander. Most social workers maintain strict confidentiality regarding client information as an ethical responsibility that can only be sacrificed to protect the client or another person from harm (National Association of Social Workers, 1996). However, similar to the context of child welfare, a client's safety or the safety of others may limit confidentiality in the military context. Due to the nature of military duties, such as carrying weapons, working with nuclear weapons, or maintaining classified national security information, a service member's mental health condition may jeopardize his or her ability to perform these or similar duties safely, and may put other individuals or the nation at risk. Thus, the Department of Defense has mandated immediate disclosure to the proper authority of any service member's mental health information indicating an inability to safely and correctly perform his or her military duties. That authority, usually the member's commander, is responsible for deciding whether to temporarily or permanently remove the member from his or her duties or even from military service (Department of Defense, 2003, 2004, 2009). These "command communications" are monitored and guided by the mental health provider and the military legal system in order to protect the service member's privacy.

Increasing Need for Military Mental Health Services

The increased need for military mental health services is apparent in the current conflict in the Middle East. The bombing of the World Trade Center in New York on September 11, 2001 resulted in the involvement of the United States and deployment of its military into Iraq and Afghanistan. These two military engagements have brought increased attention to the psychological trauma experienced by armed forces personnel during times of war, with 29% of veterans returning from these engagements seeking mental health services from the Department of Veterans Affairs, compared to 10% of Vietnam War veterans (Seal, Daniel, Miner, Sen, & Marmar, 2007). Research has shown that longer deployments, multiple deployments, and combat exposure considerably increase the risks of mental health problems for service members (Department of Defense Task Force on Mental Health, 2007; Helzer, Robins, & McEvoy, 1987; Hoge, et al., 2004; Kang, Natelson, Mahan, Lee, & Murphy, 2003; The Centers for Disease Control Vietnam Experience Study, 1988).

Despite improved efforts to provide mental health services to troops fighting in Iraq and Afghanistan, returning veterans suffer significant mental health problems. Prior to 2001, it was estimated that 6 to 12% of service members sought mental health services (Garvey Wilson, Messer, & Hoge, 2009; Hoge, et al., 2002). While recent research indicates that 29% of veterans of Iraq and Afghanistan are seeking counseling services, this number represents at most only half of those who report significant mental health symptoms (Department of Defense Task Force on Mental Health, 2007; Seal, et al., 2007). The unique features of the current conflict, such as suicide bombers, roadside bombs, and Improvised Explosive Devices (IEDs), may explain the increased risk and

prevalence of mental health problems among those service members returning from these conflicts (Hoge, et al., 2004; Tanielian & Jaycox, 2008).

Tragically, the increase in mental health problems among military personnel has not been limited to deployed settings. Over a 6 week period during the summer of 2002, four army soldiers at Fort Bragg murdered their wives, two of these soldiers then committed suicide, and an additional soldier was killed by his wife. The Army concluded that the stress of long deployments was a primary contributing factor in the incidents (Cosner, 2002). In 2008 the Army's suicide rate surpassed all previously recorded rates, all other military branch suicide rates and the national suicide rate. The Army reported that 65% of those committing suicide in 2008 were deployed or recently deployed at the time of the suicide (Carden, 2009), and has now teamed up with the National Institute of Mental Health to evaluate its suicide prevention program. Underscoring the dangerous impact of wartime stress was the killing of 13 people and wounding of 30 others at Fort Hood, Texas on November 5, 2009 by an Army psychiatrist set for deployment (Daniel, 2009).

These recent events highlight the need for mental health services in the military within both deployed and nondeployed settings. Despite the need for mental health support, many service members fail to obtain services available to them. There are many perceived barriers to using mental health services in the military context, and these barriers need to be examined to determine why services are not being used at the level for which they are needed (Britt, et al., 2008; Department of Defense Task Force on Mental Health, 2007; Greene-Shortridge, Britt, & Castro, 2007; Hoge, et al., 2004).

Focus of Proposed Research

Despite the increase in mental health problems among military personnel serving in Iraq and Afghanistan, this increase is not reflected in the numbers of those seeking mental health services. In fact, in a survey of Iraq and Afghanistan veterans, only 18% of those indicating a mental health disorder postdeployment reported having sought mental health services while deployed (Hoge, et al., 2004). This gap in service utilization is often attributed to negative stigma associated with mental health problems (Britt, et al., 2008; Corrigan, 2000, 2004; Hourani & Yuan, 1999; Regier & Kaelber, 1995).

In the military, the limits of confidentiality and fear of negative career impact may inhibit many personnel from seeking needed help (Hoge, et al., 2004; Hourani & Yuan, 1999; Regier & Kaelber, 1995; Stone, 1998). For example, under Air Force regulation, a mental health provider must disclose pertinent client information to the commander when the client may compromise personnel safety, classified information, or the mission, regardless of the client's wishes (Department of the Air Force, 2000). These regulations may exacerbate fears that an individual's commander might be informed of the member's mental health problems, and that the information thus disclosed may negatively impact future promotions and career opportunities.

In an effort to explore the factors affecting receipt of mental health services, Rowan and Campise (2006), in an Air Force sanctioned study, analyzed the mental health records of service members seen in Air Force mental health clinics across the U.S. They found that when a service member self referred to mental health treatment, command communication was indicated in only 11% of the records, that 75% of those disclosures were positive or supportive in nature, and that only 3% of self-referrals experienced a

negative career impact, ranging from change in duties to separation from military service. These findings suggest that self-referral to mental health service carries limited risk of negative career implications. The findings from Rowan and Campise's study were quickly adopted into educational trainings and briefings Air Force wide.

Rowan and Campise's (2006) findings from nondeployed military clinics cannot be generalized to mental health services provided within deployed settings, where the elevated intensity and involvement of imminent combat, coupled with typically smaller numbers of personnel and direct familiarity with commanders, may impact service members' perceptions of mental health treatment differently. While recent research has focused on pre- and postdeployment mental health clients and services, little is known about those who seek mental health services in deployed settings or the outcomes of obtaining these services.

Two studies have reported specifically on mental health populations in deployed settings. Chappelle and Lumly (2006) described the mental health services provided at a remote airbase in southern Iraq and the 154 clients seen there from 2003 to 2004, and Felker, Hawkins, Dobie, Gutierrez, and McFall (2008) analyzed the adaptation of mental health screening tools in a deployed setting in Kuwait in 2005. Both studies describe the clinical aspects and demographics of the mental health clients seen at each clinic and the importance of providing such services in deployed settings. These studies, however, do not explore the potential influence of the perceived barriers of limited confidentiality or negative career impact on service members seeking mental health services in a deployed setting. Because of the differences between nondeployed and deployed settings, it is important to understand if there is a different impact of limited confidentiality and fear of

negative career implications which may impede service members' willingness to access mental health services in the combat environment.

Purpose of This Study

I am an Air Force officer currently on assignment to obtain my Ph.D. in social work. For the past 10 years I have provided or managed the provision of mental health services to service members and their commanders. My interest in this topic emerges out of this work. Thus, the purpose of this study is to examine command communication and negative career impact within a population of military personnel accessing mental health services while deployed. This aspect of the study will extend the findings of Rowan and Campise (2006), who examined these factors for those who sought mental health services in nondeployed military settings. The proposed research will use data gathered from a deployed mental health clinic, in contrast with Rowan and Campise's data gathered from nondeployed military clinics.

The proposed research is designed to evaluate the impact of limited confidentiality and fear of negative career impact on the use of military mental health services. This study will first examine the demographics and mental health characteristics of military members using the deployed mental health clinic at Al Udeid Air Base, Qatar, from 2004 to 2005. Second, the proposed research will examine the relationship between the type of referral to services and outcomes, including negative career impact. To examine the differences between deployed and nondeployed settings, these analyses will be compared to Rowan and Campise's (2006) findings and to other research addressing use of military mental health services.

This research will first contribute to the limited knowledge describing those who seek mental health services while deployed. The research will further contribute to the mixed reviews on the effectiveness of predeployment mental health screenings regarding service members with prior mental health service utilization. Ultimately the findings may influence individual military mental health providers and policy regarding the frequency and outcomes of command communication and duty restrictions in order to decrease the stigma of mental health specific to the military context.

CHAPTER II

LITERATURE REVIEW

This chapter reviews empirical and theoretical literature relevant to understanding the underutilization of mental health services in deployed military settings. First, literature describing the need for mental health services and barriers to seeking these services among the general population is reviewed. Next, literature examining the same and other barriers as well as supports to utilization of mental health services by members in the Armed Forces is reviewed. These sections are followed by an account of what is known about those who seek mental health services in the military, including the limited existing knowledge obtained from deployed settings. The chapter concludes by examining the implications of theoretical perspectives on help seeking for an understanding of the barriers and supports of seeking military mental health services.

Mental Health Service Utilization in the General Population

Approximately 57.7 million American adults experience a diagnosable mental health disorder in a given year (National Institute of Mental Health, 2007b). Roughly 10% of Americans experience a depressive disorder in a given year, with 10.9 suicides per 100,000. About 4% of American adults suffer from posttraumatic stress disorder

(PTSD) annually (National Institute of Mental Health, 2007a, 2007c). Eight percent of the population uses illicit drugs, one in five are binge drinkers, and about 7% are heavy drinkers (Department of Health and Human Services, 2008). Further, in the United States, 22% of women are traumatized by their male partners and 14% of the country's children are similarly traumatized by some form of abuse annually (Centers for Disease Control and Prevention, 2007; World Health Organization, 2008). Despite relatively high levels of psychological distress and mental health problems, few choose to access mental health services. In fact only about 3% of the general population between the ages of 18 and 54 actually seek counseling each year (Olfson, Marcus, Druss, & Pincus, 2002).

The gap between those who would benefit from mental health care and those who actually seek care is certainly complex and multifaceted. Some research attributes this gap to the negative stigma and barriers associated with seeking psychological support. Individuals with a serious mental illness are often perceived as dangerous and unpredictable with limited social skills (Britt, et al., 2008; Corrigan, 2004). In response, people with mental illness often internalize stigma, decreasing their self-esteem and retreating socially rather than seeking support (Corrigan, 2004; Corrigan & Penn, 1999; Corrigan & Watson, 2002; Corrigan, Watson, & Barr, 2006). Research has also shown that those who are diagnosed or perceived as mentally ill are more at risk of losing their jobs, becoming homeless, and being incarcerated, among other risks (Corrigan, 2004). Perhaps stigma contributes to an explanation of why less than 20% of those with a mental disorder in the general population seek help for their problem (Bourdon, et al., 1992).

Mental Health in the Military

While the prevalence of mental illness among the Armed Forces is lower than that of the general population, there is still a significant need for mental health services (National Institute of Mental Health, 2007b). Those who enter the armed forces are medically screened prior to enlistment for mental health problems, thus theoretically decreasing the prevalence of chronic mental illness (Stone, 1998). Riddle and colleagues (2007) collected data on a large sample of military personnel in 2001 for a longitudinal study of the mental health of service members in the U.S. armed forces. They estimated that 18% of service members experience mental health problems compared to 26% of the general population. This study of service members also revealed that approximately 3% of military personnel experienced a depressive disorder, 2% an anxiety disorder, 12% qualified for an alcohol abuse diagnosis, and 2% were diagnosed with PTSD. Thus, the prevalence of mental health disorders appears to be generally lower among military service members than members of the general public (National Institute of Mental Health, 2007b).

Despite the lower levels of psychiatric diagnoses among military personnel, the military's recent involvement in Iraq and Afghanistan has been associated with increased need for mental health services in the armed forces. First, the families of service members deployed are beginning to feel the impact of long deployments and separation. Divorce rates continue to rise for deployed members and child maltreatment rates increase as much as 42% during deployment (Department of Defense Task Force on Mental Health, 2007; Rentz, et al., 2007). In terms of individual mental health, 38% of deployed service members exposed to combat

experience significant mental health problems and acute stress disorder or PTSD, and that number increases to 49% among National Guard or Reserve members (Department of Defense Task Force on Mental Health, 2007; Hoge, et al., 2004). Being deployed increases the risks of developing depression, anxiety, PTSD, and substance abuse problems (Fiedler, et al., 2006; Hoge, et al., 2004; Smith, et al., 2008). Further, Army suicide rates have increased in recent years, surpassing rates in recorded history (Kennedy, 2008; Tan, 2009). As a result, the military needs to better understand who uses military mental health services and the barriers that prevent others from accessing them.

Military Mental Health Utilization

Recent research has sought to understand who utilizes military mental health services and for what purposes. In 2002, Hoge and associates (Hoge, et al., 2002) analyzed the military's medical database, which included limited information on mental health usage in the 1990s. The study found that 6% of all active duty personnel accessed outpatient mental health services for a mental health disorder annually in 1998 and 1999 (Hoge, et al., 2002). Mental health was the second leading cause of hospitalization and the fifth leading diagnosis for outpatient visits. Higher rates of mental health hospitalizations were reported for those who were less than 24 years old, female, and single. The most common diagnoses were adjustment disorder, mood disorder, and substance abuse disorder.

More specific to the Air force, Rowan and Campise (2006) gathered mental health data from eight Air Force base clinics located in the continental United States

prior to the beginning of the Iraq and Afghanistan deployment. More than 70% of the clients were self-referred and of the total sample, the majority received no diagnosis or a transitional or temporary diagnosis, such as an adjustment disorder (American Psychiatric Association, 2000). More than one half of the sample accessing mental health services was less than 26 years old and not married, and more than 90% was enlisted. In contrast, the regular Air Force active duty population at the time was older (74% more than 25 years old), more likely to be married (59%), and somewhat less likely to be enlisted (80%) (Maxfield, 2003).

Deployment Related Mental Health Utilization

Military deployment to a combat setting increases the potential for the development of mental health problems. Postdeployment research indicates that many mental health risk factors are exacerbated with deployment (Fiedler, et al., 2006; Hoge, et al., 2004; Hoge, et al., 2002; Hoge, et al., 2005; Riddle, et al., 2007). What is less clear is who seeks the needed mental health services in the deployed environment.

Two studies have described mental health clients in deployed settings. Chappelle and Lumley (2006) conducted a descriptive study of military mental health clients over a 10 month period at a remote air base in southern Iraq. The majority of the clients was less than 30 years old and 92% were junior enlisted.[1] Forty-six

[1] "Junior enlisted" refers to the first four enlisted ranks in the Air Force comprised of E1 Airman Basic, E2 Airman, E3 Airman First Class, and E4 Senior Airman.

percent were National Guard and Reserve[2] members. Twenty-five percent of the clients were female, which is disproportionate to the current deployed population of 10-13% female (Department of Defense Task Force on Mental Health, 2007; Swords to Plowshares, 2008). Of the 13 individuals in Chappelle and Lumley's (2006) study who were psychiatrically evacuated, nine of them were National Guard and reserve members. Though limited by small sample size, this finding is similar to other studies finding higher rates of mental health problems and psychiatric evacuations among National Guard and Reserve members (Milliken, Auchterlonie, & Hoge, 2007; Rundell, 2006; Turner, et al., 2005). Chappelle and Lumley (2006) reported a 92% return-to-duty rate, which was similar to other deployed clinics (United States Army Surgeon General, 2008). Sixty percent of the clients seen in this clinic were self-referred and half received no diagnosis or a temporary or transitional diagnosis. Finally, 52% of the mental health clients in Chappelle and Lumley's (2006) study were prescribed an antidepressant and 19% were given a short-term sedative. Chappelle and Lumley (2006) noted that additional military personnel may have received mental health medication outside of the mental health system from their medical provider, thus possibly underestimating the total number of individuals prescribed medication for a mental health condition.

Felker and associates (2008) conducted a similar descriptive study of deployed mental health patients seen in a clinic in Kuwait over a 1-year period ending in 2005. Forty-two percent were less than 25 years old and nearly 60% were

[2] The National Guard and Reserve components are comprised of civilian citizens who may be called upon to augment the active duty military when necessary.

classified as junior enlisted. Forty-eight percent were National Guard or Reserve component service members, who represent approximately 20% of the deployed Army population (Department of Defense, 2007a). The most common diagnoses for patients in the sample were adjustment disorder (34%), depressive disorder (32%), anxiety disorders other than PTSD (13%), and PTSD (12%). Felker and colleagues (2008) further noted that while they were unable to draw exact comparisons, females were overrepresented among those seeking mental health services at 27% of the sample, compared to lower percentages of females in the Army in 2005 (14.3% on active duty, 12.8% in the Army National Guard, and 23.2% in the Army Reserves).

Similar to the general population, women in the military have higher rates of depression, anxiety and PTSD when compared to men (Kessler, et al., 2005; Tolin & Foa, 2006) and they seek mental health services more often (Hourani & Yuan, 1999). However, research on gender differences associated with mental health disorders and deployment has inconsistent results (Adler, Huffman, Bliese, & Castro, 2005; Fiedler, et al., 2006; Seal, et al., 2007; Unwin, et al., 2002; Vogt, Pless, King, & King, 2005; Wolfe, Erickson, Sharkansky, King, & King, 1999). While women in the military continue to seek mental health support at higher rates than men postdeployment (Lindstrom, et al., 2006) and are psychiatrically evacuated at higher rates (Rundell, 2006), one recent study found the most significant factor in predicting the mental health response was not gender, but rather the intensity and frequency of combat (Rona, Fear, Hull, & Wessely, 2007). As gender is negatively correlated with combat experience, because women are restricted from serving in direct combat duty

positions, it is difficult to assess gender-specific mental health differences under similar rates of combat exposure.

One additional aspect of deployed mental health that has not been assessed is whether predeployment mental illness correlates with or predicts deployed mental health problems. As previously discussed, military mental health providers pre-screen service members formerly seen in mental health and determine whether they are psychologically fit for deployment. The idea of not sending mentally ill troops into battle is widely supported when done efficiently without inhibiting the deployment process (Hyams, 2006). Additionally, all deploying service members are medically screened for deployment. This medical clearance process includes a brief psychological screening and asks service members to identify any recent mental health problems.

Research has produced mixed findings on the effectiveness of these predeployment screenings to accurately predict deployed mental health problems (Gahm & Lucenko, 2008; Rona, et al., 2009). A systematic analysis of all Army soldiers and Marines deployed in 2003 to 2004 showed that military screenings, which included prior mental health service use, had limited utility in predicting mental health service use post deployment (Hoge, Auchterlonie, & Milliken, 2006). Rather, research shows that exposure to combat tends to be the best predictor of the development of mental health problems while deployed and service utilization postdeployment (Hoge, et al., 2006; Rona, et al., 2006; Rona, et al., 2009). To date, no accurate measure has been developed to predict the development of psychiatric symptoms in deployed settings (Hyams, 2006; Nevin, 2009) and the primary

predictor of mental health problems, trauma symptoms or PTSD in deployed soldiers is the frequency and level of combat exposure (Hoge, et al., 2004; Rona, Fear, Hull, Greenberg, et al., 2007; Rona, et al., 2009; Seal, et al., 2007; Seal, et al., 2009; Smith, et al., 2008) Further, no studies have assessed the relationship comparing those with mental health problems before deployment and those seeking mental health services for the first time in the deployed setting.

In summary, being deployed, young, junior enlisted, female, single or divorced, with only a high school education, or in the Reserve's or National Guard may increase the likelihood of needing mental health services (Felker, et al., 2008; Fiedler, et al., 2006; Friedman, 2004; Hoge, et al., 2006; Seal, et al., 2007; Smith, et al., 2008; Turner, et al., 2005; United States Army Surgeon General, 2008).

Theoretical Perspectives on Underutilization of Mental Health Services

Despite the need for mental health treatment, many members of the armed forces who might benefit from such treatment are not obtaining services. According to Hoge and colleagues (2004), more than 60% of Iraq veterans who indicated a mental health disorder postdeployment did not report seeking treatment in the year following their deployment. This gap in service utilization may be understood through the theoretical frameworks of attribution theory and stigma theory.

Attribution theory seeks to explain society's response to an outcome based on the perceived causality of that outcome (Weiner, 1985; Weiner & Kukla, 1970; Weiner, Perry, & Magnusson, 1988). Positive outcomes attributed to high ability and intelligence are accepted and praised. In contrast, negative outcomes are perceived to

be a result of low aptitudes and thus elicit pity and low expectations. Similarly, positive outcomes in light of low aptitude are frequently perceived to be the result of luck. Attribution theory explains how society reacts to people with mental illness based on how they perceive the cause of the mental illness. Generally, conditions that are perceived to be externally caused or situational are met with more acceptance than those conditions that are perceived to be internally caused or biologically-based (Boysen & Vogel, 2008). For example, Weiner and colleagues (1988) found that individuals displayed anger and neglect towards conditions perceived to be behaviorally caused, such as AIDS, drug abuse, and obesity. However, illnesses perceived to be biological in origin elicited reactions of pity and assistance. The differing responses were explained by the perception of failure to exert personal responsibility or self-infliction on the part of those experiencing behaviorally caused conditions.

Stigma theory provides further understanding regarding perceptions of those diagnosed with a mental disorder. Corrigan and Penn (1999) define stigma as a prejudice and negative stereotype of a person. Corrigan and Watson (2002) further delineate between public- and self-stigma. Public-stigma is the reaction of the general public towards those labeled "mentally ill" whereas self-stigma is the internalization and belief of those negative perceptions. In efforts to avoid the public-stigma and the label of "mentally ill," individuals have been shown to withdraw and conceal their mental health condition in order to avoid being labeled and stigmatized (Corrigan, 2004; Corrigan & Watson, 2002; Link, Struening, Neese-Todd, Asmussen, & Phelan, 2001; Thompson, 2008). This fear of public rejection followed by social

withdrawal may then lead to increased symptomology, and a destructive cycle ensues (Corrigan, 2007; Corrigan & Watson, 2002).

Connecting attribution theory with stigma theory, Corrigan (2000) theorized that society judges those with a mental illness to be more responsible for and in control of their condition, attributing mental illness to internal control. As a result, the person is blamed for his or her condition, leading to fewer helping behaviors and more punishing behaviors from the general public. Those diagnosed with a mental illness are then labeled and stigmatized as weak, dangerous and unpredictable. Corrigan and associates (2003) supported their theory with research showing a positive public response to schizophrenia when it was perceived to be caused by an accident, and a negative response when the cause was perceived to be the result of substance abuse. Corrigan's research assists in understanding the negative attribution of mental illness that is publicly stigmatized and individually internalized, resulting in public and personal discrimination against those diagnosed with a mental illness.

The combination of attribution theory and stigma theory results in a better understanding of the stigma associated with mental health problems and service utilization. Attribution theory explains society's perception of mental illness as being behaviorally caused and individually controllable, resulting in a negative stigma towards the mentally ill (Boysen & Vogel, 2008). According to stigma theory, the resulting societal rejection is then internalized by the individuals as they engage in self-blame and further withdraw from social supports and mental health services (Corrigan, 2000).

This theoretical combination thus explains the individual and contextual disparities between those who report significant mental health problems and those who actually obtain mental health services. For example, why would a service member choose to obtain mental health services in one context but not in another? Or, why would one service member choose to obtain mental health services in the same environment where another service member may not? According to attribution and stigma theory, one might expect decreased stigma of mental health problems in a deployed setting where the symptoms may be perceived to be externally caused by wartime trauma. However, in a nondeployed, traditional setting, attribution theory suggests mental illness carries more stigma due to the perception of its being internal or behaviorally-based (Boysen & Vogel, 2008). Thus, the combination of attribution and stigma theory not only explain the cultural stigma towards mental health in the military, but individual variations in behaviors and perceptions as well.

Barriers and Supports for Utilizing Military Mental Health Services

There are several factors specific to the military that influence the stigma associated with obtaining mental health services. While most of these factors only serve to exacerbate service members' fears that obtaining psychological services may negatively impact their career or how they are perceived by their leaders, some factors may actually mitigate this perception and result in increased willingness to enter treatment.

How an individual accesses mental health services in the military can influence treatment outcome and career impact. There are generally four avenues

through which military personnel may be referred to mental health services. First, individuals may self refer or refer as a result of peer pressure. Second, they may be encouraged by a chaplain, medical provider, or a supervisor to obtain counseling regarding problems they report. Third, a member may be required by their commander to receive mental health counseling or evaluation. For example, a member may be referred for evaluation as part of a clearance process for a special duty assignment or deployment (United States Office of Personnel Management, 2008). Fourth, and more specific to this study, a member may also be referred for a mandatory mental health evaluation due to a suspected drug or alcohol problem or as a result of behavior or apparent psychological distress (Department of Defense, 1985, 2003). In this instance, military personnel are required to attend and complete a full mental health evaluation, and noncompliance may put their military career at risk of termination. Such evaluations are conducted under careful advisement of the installation's legal department and mental health leadership. Following evaluation, the individual's commander will receive a several-page report from the mental health provider detailing the findings related to mental health problems and recommendations for resumption of military duties. In addition to disclosure in the case of mandatory referral, military mental health providers are also required to divulge pertinent information to the commander of any client when it is necessary to protect personnel or classified information, or to accomplish the mission, regardless of their client's wishes (Department of Defense, 2003; Department of the Air Force, 2000). Thus, the threshold for releasing information and maintaining confidentiality regarding a service member's mental health is much lower than for that of the general

public. Consequently, any stigma already associated with seeking mental health services may only be compounded by service members' fears of negative impact on their military careers.

In efforts to explore these fears and understand why many in need do not obtain the needed services, recent research has identified several barriers to military mental health services. Similar to the general population, service members identified the difficulty of taking time off from work, the geographic separation or location of treatment centers (especially in deployed settings), and the embarrassment associated with receipt of services as barriers to seeking mental health assistance (Hoge, et al., 2004; United States Army Surgeon General, 2008). However, the majority of the barriers to mental health services identified by service members were more specific to the military setting. In the military environment, which promotes individual strength and resiliency, service members were more likely to be concerned with their leadership knowing of their mental health problems, being perceived as weak, and the potential harm it may do to their military career (Hoge, et al., 2004; Tanielian & Jaycox, 2008; United States Army Surgeon General, 2008; Warner, Appenzeller, Mullen, Warner, & Grieger, 2008). In fact, Hoge and colleagues (2004) concluded that service members with mental health concerns are likely to avoid seeking help, fearing that in so doing they will relinquish their status as fit for duty.

Other research has discovered factors that might serve as supports of the utilization of military mental health services by service members. Britt and colleagues (2007) found that the soldier's perception of stigma towards mental health was mitigated by supportive leadership and a family-friendly unit climate. Indeed,

one key factor regarding service members seeking mental health services appears to be unit leadership. Specifically, high quality leadership is negatively correlated not only with mental health stigma, but with the rate of mental health problems as well (Greene-Shortridge, et al., 2007; United States Army Surgeon General, 2008). In short, good leadership can help mitigate the negative effects of combat, sustaining unit mental health and well-being, and might serve as a facilitator of seeking mental health services.

Acknowledging the implications of stigma and attribution theories and the potential for mitigating influence of unit leadership, the Department of Defense (DoD) recently launched an anti-stigma campaign regarding utilization of mental health services in the military. Subsequent evaluation of this campaign has found that the number of service members seeking treatment for mental health problems is increasing. More than 50% of service members referred to mental health obtain the services. Additionally, 29% of veterans of the current involvements in Iraq and Afghanistan are enrolling in services at the Department of Veterans Affairs, almost three times the rate of service personnel involved in previous conflicts (Seal, et al., 2007; Warner, et al., 2008). This increase in service utilization could be attributed to the success of the DoD anti-stigma campaign, the combat stress deployed members experience, or something else entirely.

Ongoing research indicates that those service members most in need of help were the ones most afraid to get it (United States Army Surgeon General, 2008). Similarly, deployed veterans have twice the rate of depression, anxiety and simple phobias than their civilian counterparts (Fiedler, et al., 2006) but are less likely to

seek help (Hoge, et al., 2004; Hourani & Yuan, 1999; Shapiro, 1984). Despite the stigma and fears associated with seeking mental health services in the armed forces, Rowan and Campise (2006) found that many of these perceptions were unfounded and often mitigated by supportive leadership, as previously discussed. They also found that mental health providers rarely disclose information to a client's commander. When they do, the majority of the command communication is supportive, and very rarely does it negatively impact the career of service members who obtain mental health services. Rowan and Campise's findings, however, were based in nondeployed settings and prior to the Department of Defense's current anti-stigma campaign. The relationship between command communication and the duty impact of this communication for the service member in the deployed environment compared to the nondeployed environment still needs to be understood in order to further facilitate use of mental health services in the deployed context.

Research Questions

The proposed research seeks to first describe the characteristics of military personnel seeking mental health services in a deployed setting and then to compare this description to that of military personnel seeking mental health services in a nondeployed setting. Second, the study aims to provide a better understanding of the impact of command communication and duty restrictions on use of mental health services in both deployed and nondeployed settings. Finally, the study intends to explore the relationship between mental health treatment prior to deployment and the use of mental health services among deployed military personnel.

Five research questions will guide this research. The first research question is, "How do the characteristics of military personnel receiving mental health services in a deployed setting differ from those receiving services in a nondeployed setting?" This descriptive analysis will explore the differences between Rowan and Campise's (2006) data and data gathered from service members seeking mental health services at Al Udeid Air Base, Qatar in 2004 and 2005. The description will also be compared to other descriptive studies (Chappelle & Lumley, 2006; Felker, et al., 2008) also conducted in deployed settings. This descriptive analysis will include demographic variables, diagnosis, and referral source.

The second research question is "What are the differences in the rates of command communication and duty restrictions by setting?" In a deployed setting, we might expect an increase in frequency of command communication because of the need for service members to be combat ready, and the resulting lower tolerance of mental health disordered behaviors. An increase in command communication in deployed settings may or may not correlate with an increase in negative career impact, as indicated by duty restrictions, resulting from treatment dispositions.

The third research question is "Does predeployment mental health service use predict duty restriction?" Predeployment screenings, which include prior mental health service use, have produced mixed results in terms of their ability to predict mental health problems and outcomes in deployed settings (Gahm & Lucenko, 2008; Hoge, et al., 2006; Hyams, 2006; Rona, et al., 2006; Rona, et al., 2009). Significant mental health problems while deployed usually result in duty restrictions and are associated with the stigma of mental health by service members and commanders

alike (Hoge, et al., 2004; United States Army Surgeon General, 2008). This question will explore whether prior mental health problems predict significant problems in the deployed setting.

The fourth research question is "How predictive is one's diagnosis of duty restrictions while deployed?" Increased diagnostic severity, indicating an increased severity of symptoms, may also reflect an increased likelihood of duty restrictions. Clinically significant Axis I diagnoses have a stronger potential to inhibit a member's duty performance due to the frequency and severity of the associated symptoms in comparison with softer diagnoses such as an Adjustment Disorder or V-code (American Psychiatric Association, 2000). This question assesses the predictive value of these two levels of diagnosis on deployed duty restrictions.

The final research question is "Does the deployed environment affect the relationship between fear of negative career impact from obtaining mental health services and self-referral to those services?" As previously discussed, the stigma of military mental health services is strongly related to two factors specific to the military environment: the members' fear that their command will be notified of their mental health problems and the potential for duty restrictions as a result of these problems. Service members are likely to avoid seeking help in fear that these two factors specifically will negatively impact their future career progression (Hoge, et al., 2004; Tanielian & Jaycox, 2008; United States Army Surgeon General, 2008; Warner, et al., 2008). In a deployed setting, where the rate of command communication and duty restrictions may be elevated, stigma theory postulates that these factors should increase the stigma towards mental health services and the rate of

self-referrals should decline. At the same time, stigma and attribution theory might propose that the externalization of the cause of the symptoms, in this case the stress associated with the deployed environment, should decrease these fears and stigma of mental health services and might increase the rate of self-referrals.

The next chapter will describe the methods to be used to answer the above questions. The data sets that will be used will be described, and the variables to be examined within each question will be detailed. Data analysis strategies, including statistical methods and tests of assumptions will also be presented.

CHAPTER 3

METHODOLOGY

This dissertation research is a secondary data analysis of data of data collected under the direction of Lieutenant Colonel Anderson B. Rowan, an Air Force psychologist. This chapter discusses the research design, study site and participants, instrument, data collection, and the statistical methods used in the data analysis.

Research Design

This research can be described as a retrospective, comparative review of two groups of military personnel. This study begins with a descriptive analysis of active duty service members who obtained deployed mental health services at Al Udeid Air Base in Qatar from 2004 to 2005 and contrasted with Rowan and Campise's (2006) data of active duty service members obtaining mental health services in nondeployed settings. The results of this descriptive analysis were then contrasted with other findings on deployed mental health patients where available (Chappelle & Lumley, 2006; Department of Defense Task Force on Mental Health, 2007; Felker, et al., 2008; United States Army Surgeon General, 2008).

A second step in the analysis was an examination of differences in rates of command communication and duty restrictions between deployed and nondeployed settings. This was followed by an examination of the predictive value of predeployment

mental health on duty restrictions in the deployed setting, and a similar analysis of how diagnosis relates to duty restriction outcomes. The final analysis assessed the differential effect of deployed and nondeployed environments on the relationship between fear of obtaining mental health services and self-referral to those services. This included the rates of duty restrictions of those self-referred to mental health service in the deployed setting.

Data Sets

The data used for analysis in the present research came from two data sets collected under the direction of Lt Col Rowan. The first of these data sets was collected from Al Udeid Air Base, Qatar, a country located on a peninsula that protrudes off the northeastern coast of Saudi Arabia on the Arabian Peninsula. The data set includes information collected on 277 service members seen in the Al Udeid Mental Health Clinic from 2004 to 2005. The second data set was gathered from eight Air Force base mental health clinics located in the continental United States. The data set contains information on 1,487 service members whose mental health records were closed in 2002.

Use of the 2005 Al Udeid data set has been approved by the Air Force Surgeon General's Human and Animal Research Panel and the Department of Defense Command Surgeon. The contrasting data set and study (Rowan & Campise, 2006) was reviewed and approved by the Malcolm Grow Medical Center Institutional Review Board. Permission to further evaluate the data for this dissertation research was granted by both Lieutenant Colonel Anderson Rowan and the Air Force Surgeon General's Human and

Animal Research Panel. Use of both samples for the present study were approved by the University of Utah Institutional Review Board.

Data Collection

The Rowan and Campise (2006) data and the Al Udeid data were gathered from Air Force mental health records. These records are similar to those kept in most civilian outpatient mental health clinics in the U.S. and would include general demographic information, and a standard clinical intake and follow-up session notes regarding the patient's diagnosis and treatment. However, unlike a typical civilian outpatient mental health chart, military mental health treatment records also include information specific to the individual's career. This information includes the member's rank, time in service, security clearance, unit and commander, and whether the member carries a weapon or performs special duties such as flying or working with nuclear weapons (Department of the Air Force, 2000).

In addition to obtaining specific military demographic information, the clinical treatment and documentation process also varies from that of a civilian outpatient clinic. As previously discussed, due to the nature of military duties, military mental health services maintain limited confidentiality in order to protect other individuals or the nation as a whole. Per Air Force policy, when the member's mental status has deteriorated to the degree that it may pose a risk to "self, others, property, security, or the accomplishment of the military mission," the mental health provider is then required to communicate these concerns to the member's commander and document this communication, including duty restrictions, in the mental health record (Department of

the Air Force, 2000). Therefore, the mental health chart serves as the most accurate record from which to gather and assess the frequency and impact of these communications. Mental health records are closed 2 years after the last treatment if not sooner (Secretary of the Air Force, 1996).

Data Extraction

To extract data from the mental health records, each clinic was provided a detailed code book and instructions for data entry. One mental health clinical provider at each clinic was then trained and oversaw the training and data collection performed by mental health technicians within each installation. As the data collection and coding process was relatively simple and included only 14 variables, most of which were related to demographics and taken directly from the record, no further training was conducted. However, Dr. Rowan was available via telephone and email to resolve any coding questions. The Al Udeid data set was collected and coded by Lt. Col. Rowan himself.

Samples

Al Udeid Air Base, Qatar serves as the U.S. Command Center for operations in the Middle East and Afghanistan. It housed more than 100 aircraft predominantly used for midair refueling and logistical support in the region (Global Security, 2002). In 2006, the base population at Al Udeid reached 7,000 ("Qatar base population hits 7,000,"). The original sample from Al Udeid contains 277 cases, but 12 cases of civilians receiving services at the base clinic will be excluded from further analysis, as this study pertains to military personnel only.

The Rowan and Campise (2006) study gathered similar mental health data on 1,487 service members from eight Air Force base clinics located in the continental United States prior to the beginning of the Iraq and Afghanistan deployment. The clinics were located in Maryland, South Carolina, Alaska, Georgia, Japan, Hawaii, and Kansas. The bases varied in location, military mission and personnel with one exception; no base that oversees nuclear weapons was included. Outside of this exception the authors reasoned that the variety of bases sampled provided an accurate representation of the overall Air Force mission and personnel seen in Air Force mental health clinics at that time.

Merging of Samples

The two data sets were merged into a single data set for analysis purposes. Merging the two data sets required some adjustments to some of the variables. The variables of gender and marital status already contained similar labels and values. However, the remaining variables were relabeled and recoded in order to create equivalent values for analysis (see Table 1).

Service status included different categories as each location received members of different services and civilians. To merge the data sets, a new variable was created to distinguish between those serving on active duty and those not. The variable "referral source" in the deployed data set had a value for "friend," indicating members obtaining mental health services with the encouragement of their peers. Since the ultimate decision to obtain services in this situation still resides with the individual, this value was grouped with "self-referral" in the merged data set. Additionally, referrals for drug or alcohol treatment and administrative purposes, such as for security clearance, were coded as

Table 1

Variables Transformed for Data Set Merger

Deployed Variable and Values	Nondeployed Variable and Values	Merged Variable and Values
Service Status	Service	Service Status
Active Duty	Air Force	Active Duty
National Guard	Army	Nonactive Duty
Reserve	Navy	
Civilian	Marines	
Dependent	Coast Guard	
	National Guard	
Rank	Rank	Rank
E1-E4	E1-E4	E1-E4
E5-E6	E5-E9	E5-E9
E7-E9	O1-O6	01-O6
O1-O3		
O4-O6		
Diagnosis	Diagnosis	Diagnosis
None	None	None
V-Code	V-Code	V-Code
Adjustment D/O	Adjustment D/O	Adjustment D/O
Depressive D/O	Depressive D/O	Depressive D/O
PTSD or Acute Stress D/O	Anxiety D/O	Anxiety D/O
Other Anxiety D/O	Other Axis I	Other Axis I
Psychotic D/O	Axis II	Axis II
Personality D/O	Deferred	Deferred
Substance Abuse		Other
ADHD		
Deferred		
Insomnia		
Psych Factors Affecting Medical Condition		
Bipolar Type D/O		
Referral Source	Referral Source	Referral Source
Self	Self	Self
Superior Encouraged	Superior Encouraged	Superior Encouraged
Medical Provider	Medical Provider	Medical Provider
Chaplain	Chaplain	Chaplain
Command Mandated	Command Mandated	Command Mandated
Friend	Administrative	Other
Drug/Alcohol Evaluation	Other	
Other (Administrative…)		

Table 1 continued

Deployed Variable and Values	Nondeployed Variable and Values	Merged Variable and Values
Command Communication None Supportive Contact Safety Risk Remove from War Theater Other	Command Recommendation No Contact Made Return to Duty Supportive Contact Recommend Additional Treatment Referral Temporary Duty Change Change in Career Discharge Other	Command Communication No Contact Made Contact Made Other
Final Disposition RTD No Restrictions RTD With Restrictions Air Evacuation Early Return Other Duty Restriction	Command Recommendation No Contact Made Return to Duty Supportive Contact Recommend Additional Referral Temporary Duty Change Change in Career Discharge Other	Duty Restrictions No Duty Restrictions Duty Restrictions Other
Prior Mental Health None Yes, Counseling Only Yes, Medication Only Yes, Counseling and Medication Yes, Hospitalized Only Yes, Hospitalized and Medication Yes, Hospitalized, Medication, Counseling Yes, Evaluation Only	Missing	Prior Mental Health None Yes, Counseling Only Yes, Medication Only Yes, Counseling and Medication Yes, Hospitalized Yes, Hospitalized and Medication Yes, Hospitalized, Medication, Counseling Yes, Evaluation Only
Location Nondeployed Deployed	Location Nondeployed Deployed	Location Nondeployed Deployed

"other" in the merged data set as these referrals are assessed and treated very differently from standard mental health services in military mental health clinics.

The variable indicating member rank was limited to the three values used in the nondeployed data set for the final merge. The merged variable for diagnosis was similarly limited to those values already used in the nondeployed data set. From the deployed data set, those diagnosed with PTSD or Acute Stress Disorder were grouped with Anxiety Disorders as they are in the Diagnostic Statistical Manual (DSM IV-TR) (American Psychiatric Association, 2000). Those diagnosed with Substance Abuse Disorders and Psychological Factors Affecting General Medical Conditions were categorized as "other" diagnosis. These latter diagnoses were not collected in the nondeployed sample. Personality Disorders were coded under the Axis II value while Psychosis, Insomnia, and Attention Deficit/Hyperactive Disorders were coded under "other Axis I" (American Psychiatric Association, 2000).

When creating the code book for the deployed data set, Rowan distinguished types of information relayed to commanders by mental health providers if contacted by creating two variables. The first variable recorded if such communication occurred. The second variable specified whether the member's treatment disposition concerned duty restrictions. Therefore, I similarly recoded the single variable of "command recommendation" in the nondeployed data set into two variables: "command communication" which reflects whether or not communication occurred, and "duty restrictions," which indicates if the member was temporarily restricted in his or her duties, changed military career path, or was discharged from the service.

Finally, a variable was created and titled "location" to distinguish those seen in the "nondeployed" versus the "deployed" sites. Once this merging process was completed the data were double checked for accuracy.

Data Analysis

Data Set Preparation

The data from both studies were entered into and analyzed with the Statistical Package for the Social Sciences (SPSS) program (Version 16, 2007). Frequencies and descriptive statistics, including measures of central tendency and dispersion, were used to prescreen both data sets to identify any errors in the coding process and to "clean" them as permitted. As the variables used in all of the analyses were predominantly discrete with limited values, any outliers were rechecked with Lt. Col. Rowan for clarification or coded as missing if it appeared the data were misentered (e.g., a value of 15 was given for a variable that only had 4 values).

Variable Transformation

Several of the variables were further recoded with three value levels or into dichotomous variables with a value of either 0 or 1 as required for SPSS analysis (see Table 2) (Mertler & Vannatta, 2005; Meyers, Gamst, & Guarino, 2006; Pallant, 2005). The values for "diagnosis" were grouped into three values of no diagnosis, transitory diagnosis, and other Axis I diagnosis. Adjustment Disorders were grouped with V-code diagnoses as these categories represent conditions that are more transitory and brief in nature. This value contrasts with other Axis I diagnoses, such as Depression or Anxiety Disorders, which are more clinically significant and more likely to interfere with duty

Table 2

Variables Transformed for Analysis

Merged Variable and Values	Transformed Variable and Values
Diagnosis	Diagnosis
None	None
V-Code	Transitory D/O
Adjustment D/O	
Depressive D/O	Other Axis I
Anxiety D/O	
Other Axis I	
Axis II	Not Included in Analysis
Deferred	
Other	
Referral Source	Referral Source
Self	Self
Superior Encouraged	Not Self-referred
Command Mandated	
Medical Provider	Not Included in Analysis
Chaplain	
Other	
Command Communication	Command Recommendation
No Contact Made	No Contact Made
Supportive Contact	Contact Made
Other Contact	
Other	Not Included in Analysis
Duty Restrictions	Command Recommendation
No Duty Restrictions	No Duty Restrictions
Duty Restrictions	Duty Restrictions
Other	Not Included in Analysis
Prior Mental Health	Prior Mental Health
None	None
Yes, Counseling Only	Yes
Yes, Medication Only	
Yes, Counseling and Medication	
Yes, Hospitalized Only	
Yes, Hospitalized and Medication	
Yes, Hospitalized, Medication, Counseling	
Yes, Evaluation Only	

performance considering symptom frequency and severity (American Psychiatric Association, 2000). As such Adjustment Disorders were coded under the value for transitory diagnoses. The remaining Axis I diagnoses were coded as "other Axis I." Axis II and deferred diagnoses were not included in the analyses because of their low frequency.

The variable "Referral Source" was dichotomized into values representing those seeking services on their own volition and those under pressure to do so by their command. In the original data sets, "referral source" was categorized into seven values representing referral sources of self, superior encouraged, medical provider, chaplain, command mandated, or other (e.g., a required mental health evaluation for a security clearance renewal). The values for "self" remained the same and the values for "superior encouraged" and command mandated" were combined representing those members "not self-referred." Since it is impossible to determine if the member sought support from the Chaplain or medical provider by their own choice or under pressure from their command or superiors, individuals with these values were not included in the analyses examining referral source.

The variable of "command communication" was also dichotomized into values representing when no contact was made with the member's command. Similarly, the variable "duty restrictions" only included the values of "no duty restrictions" and "duty restrictions." Individuals with the value of "other" for this variable were not included in the analyses concerning duty restriction.

The final variable pertained to receipt of mental health services prior to deployment and thus was not recorded for the nondeployed sample. For analysis, this

variable was dichotomized to represent those who did not receive mental health services and those who received any mental health counseling, medication, hospitalization, or evaluation.

Question and Hypotheses

Research Question 1. How do the characteristics of military personnel receiving mental health services in a deployed setting differ from those receiving services in a nondeployed setting? Chi-square tests of independence were used to determine significant relationships between the descriptive variables and the newly created variable distinguishing deployed from nondeployed. It was assumed that statistically significant findings at $p < .05$ would indicate differences across location while nonsignificant findings would mean that an assumption of no difference across locations could not be ruled out. When the analysis consisted of a simple 2 x 2 table comparison, SPSS included the additional Yates Correction for Continuity value to compensate for a possible overestimate of the chi-square value in these instances. The assumption of this test that each cell in the table must contain a minimum frequency of five or more was met. This analysis provides a baseline comparison of the two populations for testing assumptions needed for further analysis and interpretation.

Research Question 2. What are the differences in the rates of command communication and duty restrictions by setting? This question tested the hypothesis that there would be higher rates of command communication and duty restrictions in a deployed setting stemming from the requirement to be combat ready. As in the analysis

for Research Question 1, chi-square tests for independence were conducted for "command communication" and "duty restrictions" and all assumptions were met.

Research Question 3. Does predeployment mental health service use predict duty restrictions? This analysis tested the hypothesis that prior mental health problems would predict similar problems in a deployed setting, leading to duty restrictions. Based on mixed findings in the literature regarding the efficacy of predeployment mental health screenings to predict mental health problems during deployment (Hoge, et al., 2006; Rona, 2006; Rona, et al., 2009), it was assumed that prior mental health service use would not predict mental health problems severe enough to cause duty restrictions while deployed. A logistic regression analysis was performed with "prior mental health" as the predictor variable and "duty restrictions" as the criterion variable. It was assumed that a significant finding would support the hypothesis that prior mental health service use is predictive of the rate of duty restrictions in a deployed setting. A nonsignificant finding would be interpreted as supporting the opposite assumption, as indicated in the literature (Hoge, et al., 2006; Rona, 2006; Rona, et al., 2009). Military mental health research has shown that age, rank, and gender are significant risk factors in the development of mental health problems (Fiedler, et al., 2006; Hoge, et al., 2006; Hoge, et al., 2002; Rundell, 2006; Seal, et al., 2007). The analysis included these demographic variables in order to control for their potential confounding influence. As part of the logistic regression, a chi-square analysis, equivalent to the overall *F* test in linear regression, first tested whether the independent variable contributed at a level greater than chance to the prediction of the outcomes (Tabachnick & Fidell, 2007). However, the result was not significant so no further evaluation was conducted.

There are three major assumptions to address when using logistic regression analysis. The size of the sample may limit or produce inaccurate findings if the expected count per cell is less than five. I ensured that all analyses had a minimal cell count of five (Pallant, 2005), and preferably that each cell contained at least 20 data points (Statgun Statistics, 2007). Inaccurate findings might also result from too many predictors in a model or from multicollinearity. Multicollinearity is when there are strong relationships among the predictor variables and these relationships bias the results. To address these concerns, I included at most four independent variables in an analysis. Further, the SPSS output calculates the influence of the whole model, including all independent variables, as well as each variable individually. This output allows assessment of potential multicollinearity and examination of individual variable influence while controlling for other independent variables (Tabachnick & Fidell, 2007). The final assumption of logistic regression involves evaluation of the impact of outliers, which were screened and addressed as previously discussed. All of these assumptions were met for the analysis.

Research Question 4. Does diagnosis predict duty restrictions while deployed? This analysis tested the hypothesis that as the severity of diagnosis increases, so too does the likelihood of duty restrictions. A logistic regression analysis was conducted with "diagnosis" (transient or other Axis I) as predictor variable and "duty restrictions" as the criterion variable. It was assumed that a statistically significant finding would indicate that deployed service members with clinically significant Axis I diagnoses were more likely to experience duty restrictions as a result of mental health treatment than those with more situational and transient diagnoses. A significant finding would support conclusions drawn by Rowan and Campise (1996) that seeking services early, before

symptoms increase in severity, may decrease potential negative career impact. The analysis also included pertinent demographic variables (age, gender, rank) in order to control for their potential confounding influence. All of the assumptions previously discussed regarding logistic regression were met. But again, however, the result was not significant so no further evaluation was conducted.

Research Question 5. Does the deployed environment affect the relationship between fear of negative career impact from obtaining mental health services and rates of self-referral to those services? Fear of negative career impact is represented by rates of command communication and duty restrictions. The results of Research Question 2 would indicate a positive relationship between rates of "command communication" and "duty restriction" within each location. To analyze this question, a logistic regression was planned within each location, with "command communication" and "duty restrictions" as independent variables and "referral source" as the dependent variable. It was assumed that a nonsignificant finding in the deployed location would support a hypothesis that increased levels of command communications and duty restrictions in deployed settings increase the stigma associated with mental health services and therefore decrease the rate of self-referrals. Conversely, a significant finding in the deployed location would indicate that despite higher rates of command communications and duty restrictions, the deployed environment helps to externalize the cause of mental health problems, decrease the stigma associated with mental health services and thereby increases the rate of self-referrals in that setting.

Initially, as described, a logistic regression was going to be conducted within each location, with "command communication" and "duty restrictions" as independent

variables and "referral source" as the dependent variable. This meant that the two independent variables would predict the dependent variable "referral source" which actually occurred chronologically before the two independent variables. After review, it was decided that best method to answer this research question would be to analyze the chi-square tests for independence for each variable by location. Thus, the results of the chi-square tests for independence of "command communication" and "duty restriction" by location were compared to the results of the chi-square test of independence for "referral source" by location. The same standards and assumptions used in previous chi-square analyses were similarly applied and met in this analysis.

Another question emerged during literature review regarding those who self refer to military mental health services: are duty restrictions significantly related to the referral source for mental health services in the deployed environment? The identified military barriers of command communication and duty restrictions have been shown to be exaggerated from the general military population's perception and potentially decrease the frequency of self-referral. Service members fear that mental health providers discuss the majority of their client's problems with the client's commander and that these communications usually result in duty restrictions (Hoge, et al., 2004; Rowan & Campise, 2006; Tanielian & Jaycox, 2008; United States Army Surgeon General, 2008). However, previous research with the nondeployed sample has shown that self-referring to mental health services has proven beneficial towards the member maintaining confidentiality or minimizing duty restrictions or a potentially negative career impact (Rowan & Campise, 2006). A chi-square test for independence applying and meeting the same standards and assumptions from previous questions was conducted with, "referral

source" (self, superior encouraged, and command mandated evaluation) and "duty restrictions." Significant findings would indicate an association between duty restrictions and a specific referral source. The next chapter presents the results of the data analysis.

CHAPTER 4

RESULTS

This chapter discusses the results of the research questions previously described. Initially, the demographic characteristics of each sample will be compared and contrasted to examine equivalence of the samples. The research questions will then guide the presentation of findings.

Sample Descriptions

Two data sets representing military mental health clients at deployed and nondeployed settings were merged into a single data set and used in the analysis. Initially, the deployed and nondeployed data sets contained 277 and 1,457 records respectively. However, civilian records and records from service members who were seen for administrative purposes only (e.g., recruiter evaluations or special duty clearances) were excluded as they were not representative of the population to which I seek to extend my findings. Similarly, records for individuals seeking treatment exclusively for substance use and family maltreatment records were excluded as those cases fall under a different clinical venue and are predominantly mandated services, although they were retained in the analysis if they were also seen in the mental health clinic. Following these exclusions, the deployed and nondeployed data sets contained 246

and 1,367 records respectively. Summary data describing characteristics of individuals in the two data sets are presented in Table 3 by location.

Nondeployed Sample Demographics

The ages of individuals served in mental health clinics in nondeployed settings ranged from 18 to 56 with the median age being 25 years old. The mean age of individuals in the nondeployed sample was 28 years (M = 27.9, SD = 7.81). Using age categories typical for military research, 332 (24.3%) were between 18 and 21 years old, 361 (26.4%) were between 22 and 25 years old, 412 (30.1%) were between 26 and 35 years old, and 262 (19.2%) were over 35 years of age. Two-thirds (66.7%) of individuals in the nondeployed sample were male and one third (33.3%) were female. More than half of the sample (52.5%) was junior enlisted between the ranks of E1 and E4 and senior enlisted members comprised 38.5% of the sample. The remaining 9% of the sample were officers. Nearly half of individuals in this sample were married (48.5%), while 37.5% were single and 14% were separated, divorced or widowed. The vast majority (93.8%) of individuals in the nondeployed sample were members of the Air Force, with an additional 3% from the Army and 3.2% from the Navy and Marines. The entire sample was comprised of regular Active Duty service members.

Nearly two-thirds of the nondeployed sample (65.2%) self-referred for mental health services, 26.4% obtained services at the encouragement of a superior, and 8.4% were mandated for psychological evaluation by their commander. The most common diagnosis for these individuals was a V-code (31.2%), followed by Adjustment Disorders (18.9%), Major Depression (8%), and Anxiety Disorders (7.4%). Other Axis I diagnoses

Table 3

Demographic Factors by Location

Demographic Factors	Nondeployed (*n* = 1,367)	Deployed (*n* = 246)	x^2	*Df*	*p*
Age			4.45	3	.217
18-21 years	332 (24.3%)	50 (20.9%)			
22-25 years	361 (26.4%)	78 (32.6%)			
26-35 years	412 (30.1%)	65 (27.2%)			
>35 years	262 (19.2%)	46 (19.2%)			
Gender			1.33	1	.248
Male	911 (66.7%)	174 (70.7%)			
Female	454 (33.3%)	72 (29.3%)			
Rank			1.13	2	.569
E1-E4	716 (52.5%)	129 (52.4%)			
E5-E9	525 (38.5%)	90 (36.6%)			
O1-O6	122 (9.0%)	27 (11.0%)			
Marital Status			1.26	2	.534
Single	513 (37.5%)	85 (36.6%)			
Married	663 (48.5%)	120 (51.7%)			
Separated/Divorced/ Widowed	191 (14.0%)	27 (11.6%)			
Branch of Service			39.38	2	<.001
Air Force	1282 (93.8%)	212 (86.2%)			
Army	41 (3.0%)	29 (11.8%)			
Navy/Marines	44 (3.2%)	5 (2.0%)			
Duty Status			234.87	1	<.001
Regular Active Duty	1367 (100%)	202 (82.8%)			
Reserve/National Guard	0 (0%)	42 (17.2%)			
Referral Source			.95	1	.330
Self	776 (65.2%)	93 (60.8%)			
Superior Encouraged	315 (26.4%)	55 (35.9%)			
Command Directed Evaluation	100 (8.4%)	5 (3.3%)			
Diagnosis			45.16	6	<.001
None	254 (18.7%)	28 (12.7%)			
V-Code	424 (31.2%)	78 (35.5%)			
Adjustment disorder	257 (18.9%)	42 (19.1%)			
Major Depression	109 (8.0%)	42 (19.1%)			
Anxiety disorder	101 (7.4%)	16 (7.3%)			
Other Axis I	193 (14.2%)	9 (4.1%)			
Axis II	19 (1.4%)	5 (2.3 %)			

Table 3 continued

Demographic Factors	Nondeployed (n = 1,367)	Deployed (n = 246)	x^2	*Df*	*p*
Mental Health Medication					
Deployed on Medication	N/A				
None		227 (93.8%)			
Anti-depressant		10 (4.1%)			
Mood Stabilizer		1 (0.4%)			
Sleep Medication		1 (0.4%)			
ADHD Medication		3 (1.2%)			
Prescribed New Medication	N/A				
None		197 (81.4%)			
Anti-depressant		31 (12.8%)			
Anxiolytic		5 (2.1%)			
Sleep Medication		9 (3.7%)			

represented 14.2% of the sample, with Axis II diagnoses representing 1.4%. About one-fifth of the sample (18.7%) received no diagnosis. Information regarding medication prescription was not recorded for the nondeployed sample.

Deployed Sample Demographics

The ages of individuals in mental health clinics in the deployed setting ranged from 19 to 55 with the median age being 25 years old. The mean age of individuals in this sample was 28 years (M = 27.9, SD = 8.09). In the military age categories, 50 (20.9%) were between 18 and 21 years old, 78 (32.6%) were between 22 and 25 years old, 65 (27.2%) were between 26 and 35 years old, and 46 (19.2%) were over 35. Males represented 70.7% of the deployed sample while females represented 29.3%. Very similar to the nondeployed sample, 52.4% were junior enlisted members, 36.6% were senior enlisted members, and the remaining 11% were officers. Half of the deployed sample (51.7%) was married, 36.6% were single and 11.6% were separated, divorced or widowed.

It is common in deployed settings to find a larger mix of service branches and duty status. While still not very diverse, with 86.2% of the deployed sample representing the Air Force, there were a larger proportion of Army (11.8%) soldiers in the deployed setting, but less than 1% from the Navy and Marines. Reservists and National Guard members comprised 17.2% of the sample and the remaining 82.8% were active duty. The majority (60.8%) was self-referred to mental health, with 35.9% attending at the encouragement of a superior and only 3.3% were command mandated for evaluation. Again similar to the nondeployed sample, the most common diagnosis was a V-code

(35.5%), followed by Adjustment Disorders (19.1%), Major Depression (19.1%), and Anxiety disorders (7.3%). Other Axis I diagnoses represented 4.1% of the deployed sample, and Axis II diagnoses carried only 2.3%. The remaining 12.7% of the deployed sample received no diagnosis. Regarding medication use in the deployed sample, 6% of service members were actively taking a medication in support of mental health problems at the time of deployment, and another 18% were prescribed such medications while deployed.

Demographic Comparisons Across Samples

The first research question asks how the characteristics of military personnel receiving mental health services in a deployed setting differ from those receiving services in a nondeployed setting. Chi-square tests were conducted to determine if there were any significant differences between each of the demographic variables across locations. No significant differences were found for age, gender, rank, marital status, duty status or referral source (see Table 3).

Significant differences were found for branch of service [$_X^2$ (2, (N=1,613) = 39.38; $p < 0.001$], duty status [$_X^2$ (2, (N=1,611) = 2.42; $p < 0.001$] and diagnosis [$_X^2$ (6, (N=1,577) = 45.16; $p < 0.001$]. Specifically, the deployed mental health clinic saw significantly more Army and Reserve or National Guard service members than the nondeployed clinics. And significantly more deployed service members were diagnosed with Major Depressive disorder but fewer with other Axis I disorders (e.g., Attention Deficit Disorder, Bi-polar, or Psychotic disorders) than among nondeployed service members.

Command Communication and Duty Restrictions

The second research question examined differences in the rates of command communication and duty restrictions by setting. This question tested the hypothesis that there would be higher rates of command communication and duty restrictions in a deployed setting due to the continual need to be combat ready. Table 4 presents a chi-square analysis of command communication, communication between a client's mental health provider and their commander, and duty restrictions by location. This analysis found significant relationships across settings, but contrary to the hypothesis, there were significantly lower rates of command communication in the deployed setting than in the nondeployed setting [$_X^2$ (1, (N=1,598) = 4.54; p = 0.033]. On the other hand, there were significantly higher rates of duty restrictions in the deployed setting than in the nondeployed setting [$_X^2$ (1, (N=1,382) = 7.36; p = 0.007], thus partially supporting the hypothesis.

Predeployment Mental Health Service Use and Duty Restrictions

The third research question concerned the relationship between predeployment mental health service use and duty restrictions among deployed service members. A logistic regression analysis was conducted and included the demographic covariates of age, gender and rank. Table 5 presents the results of this analysis. While there were individually significant findings within the covariate of rank, the model as a whole found no significant relationship between predeployment mental health service use and duty restrictions while deployed. This indicates that service members who obtained mental health services prior to deployment were no more likely to experience mental health

Table 4

Command Communication and Duty Restrictions by Location

	Nondeployed (n = 1,367)	*Deployed (n = 246)*	*df*	x^2	*p*
Command Communication			1	4.536	.033
No	894 (66%)	173 (73%)			
Yes	467 (34%)	64 (27%)			
Duty Restrictions			1	7.359	.007
No	1023 (90%)	204 (84%)			
Yes	115 (10%)	40 (16%)			

Table 5

Binary Logistic Regression of Predeployment Mental Health Service Use, Age, Rank, and Gender on Deployed Duty Restrictions

Variable	*B*	*Wald*	*Exp(B)*	*p*	95% CI
Predeployment Mental Health Service Use (No = 0; Yes = 1)	-.305	.543	.737	.461	[0.33, 1.66]
Age					
18-21		1.527		.676	
22-25	-.118	.051	.889	.822	[0.32, 2.48]
26-35	.109	.025	1.116	.874	[0.29, 4.33]
>35	-.805	.757	.447	.384	[0.07, 2.74]
Rank					
E1-E4 (Jr Enlisted)		6.528		.038	
E5-E9 (Sr Enlisted)	-1.173	3.100	.310	.078	[0.08, 1.14]
O1-O6 (Officer)	.575	.549	1.777	.459	[0.39, 8.13]
Gender (M = 1; F = 0)	.494	1.097	1.639	.461	[0.65, 4.13]
Constant	-1.481				

Note. x^2 = 11.962; *df* = 1; *n* = 197; *p* = 0.08. CI = Confidence Interval

problems severe enough to warrant duty restrictions than those who did not obtain predeployment mental health services.

Diagnosis and Duty Restrictions

The fourth research question explored whether a service member's diagnosis predicts duty restrictions while deployed. Table 6 reports the results of a logistic regression analysis which included the demographic covariates of age, gender and rank. Again, while there were individually significant findings regarding the covariate of rank, the model as a whole found that no specific diagnosis predicted duty restrictions among deployed service members. The limited sample size of the deployed data set restricted further analysis.

Table 6

Binary Logistic Regression of Diagnosis, Age, Rank, and Gender on Deployed Duty Restrictions

Variable	*B*	*Wald*	*Exp(B)*	*p*	95% CI
Diagnosis	.505	.412	1.656	.221	[0.74, 3.72]
Age					
18-21		.390		.942	
22-25	-.092	.030	.912	.863	[0.32, 2.59]
26-35	.263	.139	1.301	.709	[0.33, 5.20]
>35	-.010	.000	.990	.991	[0.16, 6.07]
Rank					
E1-E4 (Jr Enlisted)		6.678		.035	
E5-E9 (Sr Enlisted)	-1.387	3.854	.250	.050	[0.06, 1.00]
O1-O6 (Officer)	.194	.063	1.214	.801	[0.27, 5.52]
Gender	.598	1.549	1.818	.213	[0.71, 4.66]
(M = 1; F = 0)					
Constant	-1.872				

Note. $_{X}^{2}$ = 7.745; *df* = 1; *n* = 182; *p* = 0.08. Transient Diagnosis (V-Code, Adjustment disorders) = 0; All other Axis I diagnosis = 1. CI = Confidence Interval

The Effect of Barriers on Self-referral to Deployed Mental Health

The final research question evaluates the impact of identified barriers to military mental health services, command communication and duty restrictions, on the rate of self-referrals in both settings. As previously noted, in the deployed setting there were lower rates of command communication but higher rates of duty restrictions compared to the nondeployed setting (see Table 4). However, as this analysis pertains specifically to members self referring for mental health services, a separate chi-square test of independence was conducted for the variables of command communication and duty restrictions using only self-referrals (see Table 7). This analysis found significantly higher proportions of command communications [$_X^2$ (1, (N=866) = 4.596; p = 0.032] and duty restrictions [$_X^2$ (1, (N=823) = 16.707; $p < 0.001$] in the deployed setting compared to the nondeployed setting. Additionally, there was no significant difference in the proportion of self-referred mental health clients in either setting (see Table 3). In other words, despite a significantly higher proportion of mental health clients experiencing command communications and duty restrictions while deployed, there were no significant differences in the proportion of members voluntarily seeking mental health services between the two locations.

An additional question developed during the analysis of whether duty restrictions are related to the referral source further explores how self-referral may moderate the effects of barriers to mental health services. The deployed sample only contained five command mandated referrals, which were then split across the values in the outcome

Table 7

Command Communication and Duty Restrictions by Location (Self-referrals Only)

	Nondeployed (n = 774 & 730)	*Deployed (n =92 & 93)*	*df*	x^2	*p*
Command Communication			1	4.596	.032
No	687 (89%)	74 (80%)			
Yes	87 (11%)	18 (20%)			
Duty Restrictions			1	16.607	<.001
No	699 (96%)	79 (85%)			
Yes	31 (4%)	14 (15%)			

variable of duty restrictions. This small number violated a basic assumption of a chi-square analysis requiring a minimum of five values per cell. However, there is value in reporting and otherwise analyzing the resulting outcomes. In the deployed sample 88% of those who self-referred for mental health services experienced no command communication or at most a supportive recommendation from the mental health provider to their commander (see Table 8). Only 12% of self-referrals to mental health services resulted in any duty restrictions whereas two of the five (40%) command mandated evaluations received significant duty restrictions or were evacuated from the deployed setting due to their mental health problems.

During the analysis one serendipitous, yet noteworthy finding was discovered regarding deployed service members with Axis I diagnosis other than Adjustment Disorders or V-codes. Excluding those diagnosed with an Adjustment Disorder or V-code, 67 service members received other Axis I diagnoses. While the small number limited any further analysis and interpretations, it should be noted that 80% (*n* =12) of

Table 8

Referral Source Related To Recommendations (Deployed)

	Referral Source		
Recommendations	Self	Superior Encouraged	Commander Directed
No unit contact	77	32	0
Supportive recommendation	7	15	3
Duty restriction	11	6	2
Total	95	53	5

this subsample that experienced duty restrictions were those diagnosed with a Mood disorder (see Table 9).

Summary

The analyses for this study compared and contrasted military mental health services and clients in deployed and nondeployed settings. The deployed sample had significantly more Army and Reserve or National Guard service members and clients with a diagnosis of Major Depression. The deployed setting had higher rates of command communication and duty restrictions compared to the nondeployed setting among self-referred clients. Yet despite the increased proportion of self-referred mental health clients experiencing command communications and duty restrictions while

Table 9

Other Axis I Diagnoses With Duty Restrictions (Deployed)

Diagnosis	No Duty Restrictions	Duty Restrictions
Mood Disorders	31 (59.6%)	12 (80%)
Other Axis I Disorders	21 (40.4%)	3 (20%)

deployed, there was no significant difference in the rate of members willing to self refer to mental health services while deployed. Additionally, members who self-referred to mental health services received proportionately fewer duty restrictions than those who were mandated for evaluation. Finally, neither predeployment mental health service utilization nor the type of mental health diagnosis successfully predicted if the service member would experience duty restrictions while deployed. The final chapter will discuss the findings and relevance to deployed military mental health services.

CHAPTER 5

DISCUSSION

This chapter summarizes and discusses the research findings presented in the previous chapter. The chapter concludes with implications and recommendations for military mental health practice, military mental health policy and future research on military mental health offered in deployed settings.

Summary of Findings

Sample Demographics

Overall, the deployed and nondeployed samples showed similar demographic characteristics. However, the samples differed from the overall demographic characteristics of the Air Force and military as a whole (Air Force Personnel Center, 2010; Department of Defense, 2007b). Around two thirds of the two samples were male where just over 80% of the Air Force and military are male. In the samples only 10% of service members were officers yet 16 to 20% of the Air Force and military are officers. Just over half of both samples were under the age of 26 while 38% and 46% of the Air Force and military respectively are in that age group. Finally, about half of the deployed and nondeployed samples were married where 60% of the Air Force and 55% of the entire military are married. Generally, it appears that while mental health populations at deployed and nondeployed Air Force bases are demographically similar, they are slightly

overrepresented by those who are single, enlisted or female compared to the larger Air Force and military as a whole.

Despite their similarities, there were a few demographic differences between the samples. One expected difference was the larger presence of Army and Reserve or National Guard service members in the deployed setting. While many nondeployed military installations are comprised of service members from different service branches, the number is often insignificant outside of the installation's commanding service branch. Additionally, other than in deployment, Reserve and National Guard members are attached to their local units which are often geographically separated from regular military installations. Military benefits for Reserve and National Guard members, including medical and mental health services, are time limited and primarily covered through Veterans Affairs (VA) hospitals. Thus, only rarely is a Reserve or National Guard member seen at a nondeployed, military mental health clinic and services are usually brief and often serve only to refer the member to local or VA services.

The contrast in diagnoses between the deployed and nondeployed samples is difficult to interpret because of the small size of the deployed sample. However, one point is noteworthy. The most common diagnoses, representing over half of each sample, were V-codes and Adjustment Disorders. Previous studies (Chappelle & Lumley, 2006; Felker, et al., 2008) similarly reported Adjustment Disorder as the most common diagnosis among deployed service members. Similar diagnostic patterns have been identified in nondeployed military settings and have been attributed to unique military factors where more clinically significant diagnoses may lead to duty restrictions or increased stigma (Garvey Wilson, et al., 2009; Hoge, et al., 2002). It could be that the

military lifestyle, involving frequent changes in home and work settings and deployment, likely contribute to these diagnostic patterns as well.

Information regarding mental health medication use was not gathered for the nondeployed sample. However, substantial differences were found in comparison with findings of the Chappelle and Lumley (2006) study of military mental health clients at a remote air base in southern Iraq. Where a total of 17% of this sample of deployed service members were prescribed antidepressants, Chappelle and Lumley (2006) found that 52% of individuals in their sample were using this medication. Chappelle and Lumley (2006) identify the high usage of antidepressants in their sample as an issue of concern for future evaluation. The authors also suggest that additional prescription of psychotropic medications may have been received through medical clinics and not reported to mental health clinics. This practice probably occurs in medical clinics across the military, including the one for the current sample at Al Udeid.

Command Communication and Duty Restrictions

Contrary to the hypothesis that there would be higher rates of command communication among deployed members, there were significantly lower rates of command communication in the deployed setting than in the nondeployed setting. This hypothesis was based on an unpublished study in which deployed social workers described considerably more communications with commanders regarding their mental health patients in the deployed setting than in a nondeployed setting (Christensen, 2009). This contrary finding might be explained by a lack of accurate documentation in the deployed environment, where increased levels of military operations may diminish

attention to documentation in the mental health record, among other possible explanations. In contrast, there were significantly higher rates of duty restrictions in the deployed setting than in the nondeployed setting, as might be predicted by the requirement that all deployed service members must be combat ready, making it imperative to identify and address any apparent barriers including mental health symptoms.

Despite higher proportions of duty restrictions among service members while deployed, "return to duty" rates remained relatively high. "Return to duty" rates reflect those members seen for mental health services who are able to return to their military jobs. Some of these members may experience duty restrictions as a result of their mental health problems but the restrictions do not inhibit them from completing their current duties. Previous studies of mental health outcomes in deployed settings report "return-to-duty" rates exceeding 90% (Chappelle & Lumley, 2006; United States Army Surgeon General, 2008). Similarly, the current study found that over 90% of the sample returned to duty, although 7% experienced some type of duty restriction. It is important to note that the "return to duty" rates do not necessarily indicate treatment success. However, from the perception of the military, a return to duty meets the primary goal of mental health services in the deployed setting: to provide immediate, brief treatment near the front lines in order to keep members at their posts.

Predeployment Mental Health Service Use and Duty Restrictions

Previous research has been equivocal on the effectiveness of predeployment screenings in predicting the occurrence of mental health problems during deployment

(Gahm & Lucenko, 2008; Hoge, et al., 2006; Rona, et al., 2009). The current study failed to find a predictive relationship between predeployment mental health service use and duty restrictions while deployed. However, it would be incorrect to conclude from this finding that prescreening deploying service members based on prior mental health utilization is ineffective. Current methods of prescreening service members may have prevented those who were less likely to successfully manage their mental health problems from deploying and being included in this sample. Thus, consistent with prior research, no predeployment measure has yet been identified to accurately predict mental health problem development during deployment (Hyams, 2006; Nevin, 2009). Further, research has shown that it is the deployed environment itself that most influences mental health problem development. Frequency and intensity of combat exposure best predict mental health problem development while unit leadership and cohesion have been shown to moderate these effects (Garvey Wilson, et al., 2009; Hoge, et al., 2006; Rona, et al., 2006; Rona, et al., 2009; United States Army Surgeon General, 2008).

Diagnosis and Duty Restrictions

As previously discussed, service members are screened upon entry into the military and at least annually thereafter (Stone, 1998). This prescreening includes mental health problems as well. Service members with severe mental health problems such as severe depression, psychosis, or personality disorders may be discharged from the service (Department of Defense, 2003). This process, therefore, employs a range restriction on the diversity of diagnoses present in this military sample when compared to diagnoses of the general public.

Many clinicians may be surprised at the finding that Major Depression, for example, had no more impact on deployed service members' military duties than did the less severe diagnosis of Adjustment Disorder. Further understanding of the military environment, especially in the deployed setting, may help explain this finding.

The military environment is one of constant change and relocation. On average, service members change work and home locations every 3 to 5 years (U.S. Government Accountability Office, 2001). These relocation figures do not include additional off-site trainings or deployments. Many of the stressors military members face are also temporary, resulting in short-term diagnoses when they seek mental health support. Adjustment Disorders and V-codes are the most commonly found diagnoses in military mental health clinics, even among those being evacuated from deployed settings (Chappelle & Lumley, 2006; Felker, et al., 2008; Hoge, et al., 2002; Rundell, 2006; Turner, et al., 2005). These situational diagnoses, however, do not reduce the severity of the symptoms, which is the focal point for determining duty restrictions. Given this understanding, it is perhaps less surprising that the current study failed to indicate a difference between the diagnostic categories in predicting duty restrictions.

Barriers to Use of Mental Health Clinics in Deployed Settings

The final planned analysis of the current study originated in stigma and attribution theory (Boysen & Vogel, 2008; Corrigan, 2000; Corrigan, et al., 2003). According to these theories, we might predict that stigma associated with use of military mental health services is strongly related to members' fear that their command will be notified of their mental health problems and the potential for duty restrictions as a result of these

problems. Service members are likely to avoid seeking help, fearing that potential command communication and duty restrictions may negatively impact their future career progression (Hoge, et al., 2004; Tanielian & Jaycox, 2008; United States Army Surgeon General, 2008; Warner, et al., 2008). At the same time, stigma and attribution theory suggest that the intensity of the deployed situation may increase recognition of external causation for mental health problems and thus decrease the stigma of mental health services and increase the rate of self-referrals.

The current study found significantly higher rates of command communications and duty restrictions among self-referrals in the deployed setting. While command communication is one of the predominant fears of members in seeking mental health services, the communication and its content are generally kept confidential from other members of the unit. Nonetheless, this barrier may seem insurmountable for an individual member considering military mental health support (Hoge, et al., 2004; Tanielian & Jaycox, 2008; United States Army Surgeon General, 2008). Duty restrictions, on the other hand, are often visible and noted by other members in the unit, especially in deployed settings where restrictions limit access to weapons and other combat related duties. Despite an environment with higher rates of duty restrictions among members while deployed, the rates of those self referring to these services remained comparable to the nondeployed sample. This finding could support theory asserting that the externalization of the cause of mental health problems in the deployed setting helped neutralize the stigma normally associated with mental health services. Or, the finding could be a result of the Department of Defense anti-stigma campaign.

Theory has suggested strategies for reducing general mental health stigma. The most promising strategy has been that of personal contact (Corrigan & Penn, 1999; Couture & Penn, 2003). Approximately 48% of the deployed sample received mental health support services (counseling, medication, or hospitalization) prior to deploying. After receiving mental health services prior to deployment, members in the deployed sample remained in the military, were combat ready and fit for duty, and they returned for additional mental health services while deployed. It might therefore be assumed that these members had a positive, even successful previous experience with their mental health providers, thereby supporting personal contact as a strategy to overcome the barriers and stigma associated with mental health services.

The findings of this study also question the perceived threats from command communication and duty restrictions as barriers to use of mental health services. Prior research has indicated that service members fear that mental health providers discuss the majority of their client's problems with the client's commander and that these communications usually result in duty restrictions (Hoge, et al., 2004; Rowan & Campise, 2006; Tanielian & Jaycox, 2008; United States Army Surgeon General, 2008). However, Rowan and Campise's {, 2006 #133} initial study with the nondeployed data set found that only 3% of self-referrals to mental health services resulted in a negative career impact. In the current research, 88% of members in the deployed sample who self-referred for mental health services experienced no command communication or at most a supportive recommendation from the mental health provider to their commander. Only 12% of self-referrals to mental health services resulted in any duty restrictions, while two of the five (40%) command mandated evaluations received significant duty restrictions or

were evacuated from the deployed setting due to their mental health problems. Consistent with Rowan and Campise's (2006) previous research with the nondeployed sample, it appears that self-referring to mental health services may increase confidentiality and possibly decrease duty restrictions. Rowan and Campise (2006) suggest that waiting until unit leadership notice member's problems and mandate a mental health evaluation most likely occurs when symptoms have exacerbated and likely require more significant interventions and duty restrictions. Thus, self-referral for mental health support early may increase confidentiality and limit, if not avoid, duty restrictions.

Despite decreased confidentiality and increased duty restrictions, rates of self-referral to deployed mental health clinics were the same as in the nondeployed sample. While the number of those seeking military mental health services is increasing overall, some research suggests that many more service members quietly suffer without obtaining support (Hoge, et al., 2004). Further, some studies have indicated that many deployed service members don't evidence mental health problems until months or years following their deployment (Friedman, 2004). This latent problem development may, however, prove beneficial for the military. It may benefit the military if deployed service members manage their mental health symptoms while deployed, limiting the impact of symptoms on the more critical deployment duties and mission, and time away from their unit if they otherwise needed mental health support. Once the deployment is completed service members may then obtain mental health support when they arrive home in a more stabilized environment.

Study Strengths and Limitations

Strengths

Exploratory research. While previous research explores mental health among pre- and postdeployed service members, only a few studies have discussed mental health services in a deployed environment. Further, while one other study (Rowan, 1996) examines the relationship between receipt of mental health services and service members' military duties, none explores this phenomenon in a deployed setting, where stress and the wartime environment may significantly influence the outcomes. The results of this study will also extend the body of research on barriers to using mental health services in military settings and may help the military find ways to keep members fit for duty and prevent sequalae of combat trauma from affecting members after their return to civilian life.

Methodological factors. There are several advantages to using logistic regression. Primarily, logistic regression allows the prediction of outcomes into dichotomous categories. Additionally, in logistic regression there is no assumption of normality, homogeneity or equal variance. It does not assume a linear relationship between independent and dependent variables nor require that independent variables contain equal intervals between categories.

Limitations

Confidence in findings. One limitation to the use of logistic regression lies in its interpretation. Logistic regression is based in chi-square analyses and therefore allows only for interpretation of the direction and strength of influence of independent variables

on dependent variables, rather than on discovery of causal relationships between variables. The logistic regression model, while relatively free from statistical assumptions, requires at least 20 data points per variable in order to have interpretable findings (Statgun Statistics, 2007), resulting in a larger required sample size. Further, while the extraction and coding of these data was a simple process as previously described, there is still the possibility of errors and miscoding that may influence the analyses.

Generalization of findings. History may play an unknown influential role in this study. While the two samples were drawn only a few years apart, those years were marred by the events of September 11, 2001 and the subsequent wars in Iraq and Afghanistan. Amidst these events and wars, the Department of Defense attempted to decrease the stigma associated with military mental health services in efforts to better support its traumatized service members. While it is impossible to measure the impact of such events on this analysis, their potential effect must be acknowledged.

The interpretation of the results of this study may also be limited by the sample itself. Analysis of both samples is limited to active duty Air Force members. Similarly, while the deployed location of Al Udeid Air Base, Qatar represents a typical Air Force deployment site, it is not representative of or even similar to deployment locations for other services in the Armed Forces. While these factors give strength to the statistical comparisons conducted between the deployed and nondeployed samples, it restricts the generalization of findings to the active duty Air Force population.

Study Implications

Military Mental Health Practice

The findings of the current study may help military mental health providers better prepare to operate in a deployed setting. Deploying providers should familiarize themselves with the missions and duties of other branches of the military as they will undoubtedly encounter members from various service branches during deployment. For example, limiting weapon access to an infantry soldier has much greater impact on that soldier's individual sense of duty and unit than the same duty restriction for an airman who is a medical technician in the hospital. Similarly, deployed mental health providers need to understand the stressors unique to Reserve and National Guard members who may deploy for longer periods of time and normally live outside of the active duty military culture.

As is true of all mental health providers, those in deployed settings need to understand commonly prescribed mental health medications. The current study indicated that 24% of deployed service members utilizing mental health services were also prescribed psychotropic medication. Other studies focusing on the combat environment have found the proportion of clients on psychotropic medications to be in the majority of deployed mental health users (Chappelle & Lumley, 2006). Mental health providers who may be consulted by prescribing physicians should have a basic understanding of the functions and side effects of these medications.

Deployed service members seeking mental health services receive similar diagnoses as service members who are not deployed. Yet, the environment and mission in the deployed environment mandate the need for brief therapy interventions to return

the member to full duty quickly. As a result, military mental health providers should review and improve their skills in evidence-based brief therapy interventions, specifically addressing the effects of stressors in a deployed setting.

In addition to evidence-based brief therapy interventions, Corrigan and Penn (1999) suggest that personal contact with mental health providers increases the likelihood of self-referral (Couture & Penn, 2003). Based on this research, mental health practitioners should consider increasing outreach activities, such as personally meeting each commander in the deployed location to lessen the impact of stigma on self-referral for mental health treatment. With increased rates of duty restrictions and command communication in the deployed setting, at least among self-referred members, building a relationship with commanders early may help facilitate this process and find ways to decrease the stigma of mental health services within the unit. For example, in one deployed setting the mental health provider worked with the client's command and simply removed the ammunition but allowed the member to keep the weapon (Christensen, 2009). This ensured the need for safety but decreased the potential stigma perceived from the client's peers as he was still seen carrying his weapon. Outreach approaches with medical staff and chaplains may result in similar efficient yet positive outcomes.

Military Mental Health Policy

Despite limitations on ability to clearly interpret and generalize from this study, there are two implications for military mental health policy. First, findings related to the effectiveness of prescreening deploying members in order to predict mental health

problems during deployment have been equivocal (Gahm & Lucenko, 2008; Rona, et al., 2009). The present study found that members' prior use of mental health services was not predictive of development of mental health problems important enough to warrant duty restrictions while deployed. Given that prior research has found that deployed mental health clinics return members to duty more than 90% of the time (Chappelle & Lumley, 2006; United States Army Surgeon General, 2008), it is possible that those who are likely to develop such significant mental health problems during deployment are screened out, but perhaps not on the basis of prior use of mental health services alone. While additional research is needed to explore this area, it is possible that the current screening process may accomplish this goal without further scrutinizing members' personal problems and probably increasing the negative stigma already associated with seeking help (Rona, et al., 2006).

A second implication for military mental health policy that might be derived from the present study concerns the Department of Defense mental health anti-stigma campaign. Consistent with theoretically based recommendations, the present study found that external attribution of causality of mental health problems may serve to decrease barriers to accessing mental health services among deployed service members. Developing campaign tactics which reinforce situational causation for mental health problems and publicizing the low rate of command communication and duty restrictions among self-referred clients may together increase rates of self-referral.

Future Research

Findings from the current study, while difficult to interpret and to generalize beyond the samples, offer several implications for future research about deployed military mental health services. First, a larger sample of service members using mental health services in deployed settings would permit further analysis of the impact of command mandated evaluations and outcomes for high risk clients in the deployed setting. A larger sample may also allow exploration of the impact of unit cohesion on referral patterns to military mental health services as well as permit analysis of the relationship between service members' prior history of mental health utilization or their diagnoses and the development of mental health problems which are severe enough to cause duty restrictions during deployment. Ideally, the military could determine more precisely those characteristics which present real risk for duty restriction and either provide interventions to prevent the development of severe mental health problems or prevent deployment of the service members at high risk. A major recommendation for future research would be to expand the sampling and analyses to combat active deployment sites as well as to other military service branches. Such findings could improve deployed mental health provider training and services and may assist the DoD to design more effective anti-stigma interventions and to implement policies that would increase military member confidentiality and to decrease mental health stigma.

Conclusions

This study provided a unique look at deployed military mental health services and clients contrasted with those in a nondeployed setting. Despite the drastically different

environments and the presence of deployed members from other service branches, the samples were characterized by similar demographic and referral patterns. Deployed service members face similar, if not increased, barriers to mental health services as do nondeployed members. Regardless of their diagnosis or whether service members used mental health services prior to deployment, military mental health clinics continue to return members to duty more than 90% of the time, continuing to justify the training and supporting of military mental health teams on deployed missions. The findings suggest that attempts to prescreen deploying service members based on predeployment mental health service use would not be effective. Additionally, military mental health providers should train in brief therapy interventions specific to deployment stressors and combat environments while increasing their outreach efforts. Further research regarding external symptom causality may prove beneficial in anti-stigma campaign development. Publicizing the low rate of command communication and duty restrictions, especially among self-referrals, may also decrease barriers to military mental health services.

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